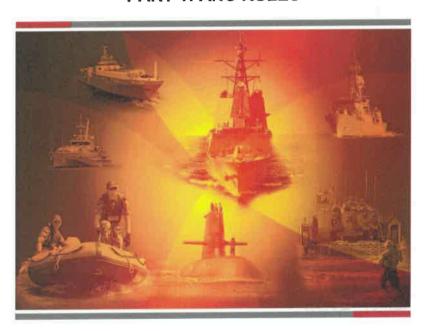**Australian Government**

**Defence**

# AUSTRALIAN NAVAL CLASSIFICATION AUTHORITY MANUAL (VOLUME 2)

## DIVISION 5: REMOTE AND AUTONOMOUS SYSTEMS

## SECTION 0: GENERAL

## CHAPTER 02: AUTONOMOUS CONTROL SYSTEMS

## PART 1: ANC RULES



This document is issued for use by Defence and Defence Industry personnel and is effective forthwith.

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**ANCA Manual (Volume 2)**

Division 5: Remote and Autonomous Systems, Section 0: General, Chapter 02: Autonomous Control Systems, Part 1: ANC Rules, May 2024 Edition

**Developer:**

Australian Naval Classification Authority

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[1]  https://www.legislation.gov.au/Series/C1968A00063

[2]  https://www.legislation.gov.au/Series/C2004A04868

[3]  https://www.legislation.gov.au/Series/C2004A03712

[4]  http://drnet/AssociateSecretary/security/policy/Pages/dspf.aspx

# AUSTRALIAN NAVAL CLASSIFICATION RULES

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[5] https://www.defence.gov.au/business-industry/industry-governance/australian-naval-classification-authority/australian-naval-classification-rules

# AMENDMENTS

Proposals for amendments to the ANCA Manual (Volume 2) may be sent to:

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# EDITIONS

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Division 5: Remote and Autonomous Systems (RAS) Rules
Part 1: ANC Rules

# Chapter 02: Autonomous Control Systems

## Contents

## Australian Naval Classification Rules

## Rule 0.       Scope and Application

0.1     This Section details the Autonomous Control Systems (ACS) requirements, which apply to all other Sections of this Division.

0.2     If there is a conflict between the requirements of this Division and the requirements in another Division or Chapter of the ANC Rules, the ANC Authority shall decide which requirements take precedence.

0.3     ACS are a set of software tools and algorithms specifically designed to enable decision-making and self-governance within a remote or autonomous system. ACS function independently or semi-independently, with the primary goal of overseeing and managing control or decision-making functions of a Remote Autonomous System (RAS), with the capability to reduce or eliminate the need for extensive human intervention or input.

## Rule 1.       Provision of Commands

1.1     The ACS shall have an interface or process in which an operator can provide commands, guidance or control messages.

## Rule 2.       Command and Control Authorisation

2.1     The ACS shall accept commands from an authorised command and control system as defined by the Naval Vessel Operator (NVO).

## Rule 3.       Acceptance of Third Party Commands

3.1     The ACS shall have the capability to facilitate commands, directives or inputs from third-party or non-affiliated authorised command and control networks or systems.

## Rule 4.       Comprehension of Commands

4.1     The ACS shall have the ability to read, parse and write commands, messages or transmissions that are received or sent in an authorised format through authorised means.

## Rule 5.       Handling of Commands

5.1     The ACS shall have the ability to accept, forward or route commands, messages or transmissions on an authorised command and control network without modification of that command, message or transmission.

## Rule 6.       Acknowledgement of Commands

6.1     The ACS shall provide verified confirmation of receipt of commands, direction or control.

## Rule 7.        Provision of Information to Operator

7.1        The ACS system shall provide the operator with verified, validated and current:

7.1.1        situational awareness data

7.1.2        goals and Intentions

7.1.3        plans/courses, and

7.1.4        mission constraints.

## Rule 8.        Interoperability

8.1        The ACS shall have the ability to be interoperable with systems, processes and networks as required by the NVO.

## Rule 9.        Recording of Commands

9.1        As required by the NVO, the ACS shall securely keep a log or record of received, routed, forwarded or sent messages, commands or transmissions on any network or communications means that the ACS is capable of utilising.

## Rule 10.        Decision Making Capability

10.1        The ACS shall have autonomous capability to achieve safe, predictable and reliable decision-making to operate as described in the Operating and Support Intent (OSI).

## Rule 11.        Decision Making Logic

11.1        The ACS shall display, record, and explain autonomous decisions in terms understandable in plain English.

## Rule 12.        Indicative Activities

12.1        The ACS shall provide a clear indication to commanders and decision-makers of the potential activities or actions that the ACS will complete when initiated.

## Rule 13.        Verification and Validation

13.1        Means shall be provided to perform verification and validation of the Automated Control System performance throughout design life.

## Rule 14.        Data Protection

14.1        The ACS shall have protection of personal or sensitive data entered or obtained by the ACS.

## Rule 15.   ACS Lifecycle

15.1   The Original Equipment Manufacturer shall have defined processes to securely and effectively patch, update, modify and roll-back the ACS whilst maintaining safe, reliable and repeatable delivery of RAS vessel capability as per the OSI.